

SMALLEST OP-AMP

Texas Instruments introduced in **DALLAS and INDIA on February 8, 2018** the industry’s smallest operational amplifier (op amp) and low-power comparators at 0.64 mm<sup>2</sup>. As the first amplifiers in the compact X2SON package, the TLV9061 op amp and TLV7011 family of comparators enable engineers to reduce their system size and cost, while maintaining high performance in a variety of Internet of Things (IoT), personal electronics and industrial applications, including mobile phones, wearables, optical modules, motor drives, smart grid and battery-powered systems. With a high gain bandwidth (GBW) of 10 MHz, fast slew rate at 6.5 V/μs and low-noise spectral density of 10 nV/√Hz, the TLV9061 op amp is designed for use in wide-bandwidth, high-performance systems. The TLV7011 family of nanopower comparators delivers a faster response time with propagation delays down to 260 ns, while consuming 50 percent less power than competitive comparators. Additionally, both devices support rail-to-rail inputs with low-voltage operation down to 1.8 V, enabling ease-of-use in battery-powered applications.

Achieve high performance in tiny spaces with the TLV9061 operational amplifier

**Reduces system size and cost:** In addition to its tiny size, the TLV9061 op amp also features integrated EMI filtering inputs. This helps provide resilient performance for systems prone to RF noise, while significantly reducing the need for external discrete circuitry.

**Greater DC accuracy:** Two times lower offset drift and typical input bias across a full temperature range, -40 to 125 degrees Celsius, creates a more precise signal chain solution compared to other small devices.

Lower power, faster response with the tiny TLV7011 family of comparators

Smaller footprint, extra features: No phase reversal and integrated internal hysteresis for overdriven inputs increase design flexibility and reduce the need for external components.

**Fifty percent less power consumption:** With power as low as 335 nA and fast propagation delay down to 260 ns, the TLV7011 family of nanopower comparators enable low-power systems to monitor signals and respond quickly.

These new devices join TI’s small-size amplifier portfolio which enables engineers to design smaller systems, while maintaining high performance, with industry-leading package options and many of the world’s smallest op amps and comparators.

Tools and support to speed design

Designers can download the TINA-TI SPICE model to simulate their designs and predict circuit behavior when using the TLV9061 op amp and TLV7011 family of comparators. Engineers can jump-start their small brushed DC servo drive designs using the TLV9061 op amp with the 10.8-V/15-W, >90% Efficiency, 2.4-cm<sup>2</sup>, Power Stage Reference Design. Also, they can quickly and easily evaluate the TLV7011 comparators with the DIP adapter evaluation module, available today for US\$5.00 from the TI store and authorized distributors.



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Scientists study the world as it is; engineers create the world that has never been.  
 - Theodore Von Karman